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DISSERTATION

ON THE

NATURE and TREATMENT

OF THE

TYPHUS

OR

NERVOUS FEVER.

MILLEDGEVILLE:

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DISSERTATION, &c.

WE learn that this fever is raging at this moment in different parts of the state with more than ordinary violence, and mortality. Among us, the heart of friendship bleeds, it has spilt the tears of sorrow, and torn away from us forever those talents, which were about to diffuse the brightest lustre.

THE observations I have to make, are addressed to the good sense and candor of our practitioners, and if in an error, I hope to be corrected by them.

WHAT the remote cause of this disease may be, I shall not take upon myself to enquire, since, even if it could be fully ascertained, it would be of little or no importance to the practitioner, in making up his measures of cure.

BUT, that it is some kind of morbid stimuli, acting either on the cutaneous surface, and penetrating through the subcutaneous capillaries to the seats of life, or taken directly into the parenchymatous structure of the lungs, and acting directly on the blood, and thereby producing changes in that fluid, which usher in the symptoms of the disease, I think there can be but little doubt. These morbid stimuli may either be furnished by the particular constitution of the atmosphere, or the atmosphere may be charged with them by some exhalent body.

THE brain and nerves have generally been supposed to be the seat of the disease, but had we leisure to examine their physiology, and compare the symptoms we could prove from good authority, that the brain, and nerves are not primarily affected, and are not the seat of the disease.

BUT in order to form some notion of its pathology, we shall mention facts without taking time to prove them as proofs may be abundantly found among the writers on physiology.

THE symptoms are too well known to need much description. In the commencement the pulse is low, and not frequent—the patient feels drowsy, and the intellectual functions often slightly interrupted. Here I pause to consider what may be the cause of all this—surely something: and to discover the truth, we must look into the organization where these phenomena exist. The pulse is preternaturally slow, and we conclude with certainty it is owing to some change in that whatever it be, which primarily communicates to the pulse its motion. It will be seen that it is the oxygen, the blood acquires in passing through the lungs during respiration, which enables it to circulate through the system by the assistance of a machine it sets in motion for this purpose: I mean the muscle of the heart, taken then into the lungs, it has been discovered that the oxygen of the atmosphere, imparts to the

blood the principle of coagulability, which constitutes its motive quality: and thus equipt, and conducted along the pulmonary veins, it enters the heart—the heart is set in motion; and the heart by throwing the blood into the brain, puts the brain in motion,and instantly all the intellectual faculties play; new thoughts flow after each other, and unite on the fair canvass of the mind, and the reaction of these upon the perceptive faculty, arouses in the mind a consciousness of her own being; she startles, and knows not which to admire most, the splendor of her furniture, or the suddenness of her existence.

It would not be amiss here to observe, that the mind can react upon the brain, the brain upon the heart, the heart upon the lungs, and by the action and reaction of these organs upon one another, physiologically speaking, all the diseases, pleasures, and pains of life are produced hence the cold paleness of terror, smile of joy, &c.

Let what has now been said, be applied to the disease before us. We have seen that it is the coagulability the blood acquires from the oxygen in the lungs, that enables it to vitally stimulate, and move the heart. Whatever then we conclude alters this coagulability of the blood, either by sinking it below, or raising it above the healthy standard; (that is, the proper quantity the system requires,) will alter the health; and if the blood, which passes to the brain be redundant, or deficient in this principle, there will not be a healthy action excited in the faculties of the mind, hence very often during the exacerbation of a fever, where there is increased vascular action, the preternatural activity, and glowing brightness of the intellect. Do not wine, and all other stimulants, increase the vividness of the understanding, by increasing vascular action, thereby throwing a greater quantity of blood in a given time, into the sinuses of the brain; and hurrying its secretion, which gives origin to the display of the mental functions? Whereas, on the contrary, in Typhus Fever, there is evidently a want of vascular action; and should we be astonished in these cases, that there should be no visible mind, or only a disordered one, when it takes place according to the established order of things, and could not be otherwise.

The fact is well ascertained that the blood of typhus patients will scarcely coagulate; it is then deficient in the coagulating principle, and when received in the heart is scarcely able to excite its contractions, and hence the low creeping pulse.

The contractility of the muscular fibres being exhausted, and the blood having parted with its coagulability, is no longer able to furnish the muscles with contractile power, and hence the suddenness of the prostration of strength in the Nervous Fever.

The blood rolling slowly and languidly along, toward the region of the brain; and being no longer fit to excite its healthy actions, either does not excite them at all—that is, excite them so as to produce the phenomena of the intellectual functions, as in perfect amentia, or disorderly and powerfully as in the ravings of delirium.

According to the known laws of the animal economy, a sufficient explanation of all the phenomena of the disease, has been deduced. 1st. The deficiency of the coagulating principle in the blood is the cause of its languid circulation through the system. Secondly. The muscular fibres lose their contractility on account of the want of the coagulability of the blood, and hence the great prostration of strength; and thirdly, the blood is unfit to keep up the action of the brain, which accounts for the disorder of the intellectual functions.

Ye sceptics in medical theory, and medical reasoning, can you doubt these facts, or will you deny them because they explain, and lead directly on to a practice, different from the one you have adopted; or had you rather turn your head from the overpowering lustre of truth, and ramble the gloomy labyrinth of error?

Respecting then, the proper treatment of the disease from the explanation of the symptoms, there can be no doubt. We have been more particular, since it were foolishness these times, to assert facts of this kind, without some sort of demonstration, when the science of medicine is so rapidly revolutionizing. We see every day, medical theories, and opinions glowing in all the tinsel of fine reasoning, and radiated with the light of apparent truth, generated, and pass away as the moments of time. Practitioners of the first talents, oscilliate in uncertainty, are tript up, and borne away by the broad current of public opinion. Medicine like wigs in Drydens' time, is becoming fashionable, and we must practice like we wear the waist of our coat high up, or low down. Hark, were we to tell the people to relax the hardships of labour the heavens would rain a shower of gold, they would take umbrage at our imposition on their credulity; but were we to offer them a fashionable dose they would swallow it down as their salvation; and though it possessed no curative relation to their disease, they would be healed as it were, out of good humour.

Look this moment, seated side and side in the triumphal car of our Medicine, the bitter Shrub of Peru, and the narcotic Weed of Turkey; with chains in one hand to confine Death, and thongs in the other to scourge him from our habitation. And as the car moves along, see our physicians bend in adoring attitude, like some ancient hero before the image of Jupiter Stator, interceeding with his marble divinity, for his country; or the worshipping Hindoos before the Temple of Juggernaut.

No person places more confidence in Opium and Barks than myself, when properly used. But can we blow rivers back to their mountains with our breath, or add to the catalogue of miracles by enchantment?

Does Nature turn the tenor of her course to suit our caprice, that Medicine is degenerating into a mechanical art? In the same way, one day the science of Chemistry will develope the holy mysteries of religion, and we shall see the preacher with his crucible analyzing the word of God with the caloric of the Holy Spirit; and the Chemist with the Bible in his hand explaining the occult qualities of material

bodies; the arts of ship-building applied to explaining the knotty points in politics. O shame! shame!! O sad abandonment and prostitution of our mental powers!

The practice among us at this day, is decidedly in favour of the stimulating regimen, under the idea, or impression of supporting the sinking strength of the patient. Is this right? Do stimulants really support the strength of the system in Typhus Fever; or rather do they not weaken in the end, by calling into action, and destroying that principle, or condition of life, which we have seen is already too much exhausted, and without which the actions of the vital machine cannot continue a moment? You at the bed side recognize this important truth, in the large portion of stimulus required to produce the smallest effect; and by practicing to the contrary, thousands have been martyred on the barbarous and unhallowed altar of ignorance. To give large drinks of warm tea under the impression of sweating out the disease in a general way is wrong. Sweats are inefficient remedies, and are not often indicated by nature. They churn, and break down the natural and healthy consistency of the blood, or rather destroy its organization; for the blood is an organized fluid, by driving it too rapidly through the extreme ramification of the vascular arterial system; and thereby rendering it more inflamatory, and feverish, and more incapable of supporting the vital action of the constitution. Hence the debility under copious sweats. What must be the attrition in high sweats the blood must sustain in passing like electricity through the calibers of those arterial tubes, which are scarcely visible to the eye? The texture of the blood being injured (if we may so speak,) like the muscles, bones, &c. may it not inflame, and will not this artificial inflamation produced by sweats, be injurious in all fevers of an inflamatory type; and is not the Typhus Fever a highly inflamatory one?

The whole of the human structure, and the structure of all animals and vegetables are a secreted mass, secreted by powers attached to pre-existing organization. The sap in vegetables may be considered as wood in a fluid state, and the blood in animals as a menstruum, in which are dissolved indiscriminaltey, bones, muscles, and all the different parts, which go to complete the structure; and held in suspension until the secretary organs seperate them from one another, and give them their proper character when they are conducted along living canals to their destined stations in the animated whole. And as the whole mass of inanimate matter is suspended between the repulsive force of caloric, and the cohesive energy of gravitation, so all that is organized is suspended between the powers of assimilation, and those of absorption. And this is the reason when there is a stop put to assimliation, the body goes so rapidly to destruction, for the absorbents keep an acting even after death. Could their action be suspended like we suspended the motions of a watch, would it not be of great moment to physicians in curing chronic diseases, where their constant toil brings death long before a cure can

be effected? Were a medicine to effect this purpose discovered, it would make a great annal in the history of our science, and protract human suffering almost to infinitude. I do not see to the contrary but patients might labour 40 or 50 years under the most tortoring diseases, and remain corpulent the whole time. But the relations of life as it is now attached to matter, are such, that if the conditions requisite for the comfort and happiness of the sufferer be destroyed, and cannot be restored, the absorbents will quickly open to his sorrows the asylum of the grave. That is, as soon as the action of the Chylopoietic Viscera, and the whole of the assimilatory organs are obstructed the absorbents proceed to tear down, and remove the structure—the seat of suffering.

Here then is Anatomy kneeling on the altars of Religion, and pouring down through the First Cause, the dulcified stream of happiness upon the whole of the animated world.

From these observations the reason is obvious why the flesh melts away so fast in accute diseases; and more particularly in those which are highly inflammatory. The inflamed blood being unfit to repair the wastes of the system, there is an immediate stop put to the assimilating process; but where there is little or no inflammation, the blood still continues to supply the vital matter the absorbents take away, and the flesh shrinks but slowly. In all inflammatory diseases then, great and powerful sweats, which undoubtedly increase the inflammation, will cause the flesh to shrink more rapidly, and indirectly hasten death by diminishing assimilation. And this is the reason why we object so strongly to warm drinks, and sweats in Typhus Fever, which is undoubtedly very highly inflammatory. If then, sweats were really indicated in any stage of this Fever, ought they not to be mild, and would not the warm bath or sponging, more frequently supersede their necessity.

The Diaphoretics in greatest use, are Antimonials combined with Stimulants; bnt as few things have a more direct tendency to destroy the moving powers of life than Antimonials, I cannot subscribe, even admitting Diaphoreties to be proper remedies in the general tone of praise with their votaries.

If neither Stimulants, nor Diaphoreties will succeed I may be asked when called to Typhus Patients, what ought to be done. Were I to propose Cathartics, I suppose I should hear them pronounced certain death, the system being unable to support them; but when this matter is examined, I suspect it will turn out a prejudice.

We have seen in Typhus Fever that the whole system is in a state of stimulation, or excitement far above health occasioned by the action of the morbid stimuli, on the irritability, or as it has been called stimulability of the living fibres; the exhibition of stimulants therefore tends directly to produce death by increasing this excitement, and raising it to that pitch which paralizes the springs of vital action. Whatever medicines then will remove this excitement, and by removing the excitement, take off the torpor

from the vascular system, and restore the tone of the muscular fibres will be the proper ones to be depended upon in this alarming disease. The inertness, and unadaptation of Dianhoreties, have been made obvious. Are not cathartics (I appeal to Practitioners as Physiologists and Philosophers,) directly to this purpose? Do they not take off that excitement, which is the cause of the great debility, and which was produced by the morbid stimuli, and thereby reduce the disordered functions to a proper action by bringing them back to a proper state of excitement.

This truth is a cardinal one upon which the whole doctrine turns. In most cases it will shut the door upon death, and bear the sinking powers of the constitution triumphantly away, to rebloom in health.

One or two grains of Calomel alone or combined, given occasionally as the patient can bear, will be sufficient. The practitioner must be watchful—he must not hurry the evacuations beyond the strength of the patient; neither can he expect to reduce the excitement all at once. So far from this, all along he must occasionally stop, and even go back, by creating a little excitement from wine, thereby furnishing the patient with artificial strength, until his natural strength can be restored to him by cathartics. That is, during the operation of cathartics support the strength with wine, but give no more than is really necessary. Valerian may be given during the fever,, and the evacuations must be kept up, until the febrile symptoms are pretty well gone; when Barks, Wine, Opium, and the mineral acids may all be exhibited with great advantage in completing the cure.

Under the first evacuations the Patient very often feels fainty, and this is the debility so alarming, and so much dreaded by Practitioners; wine restores him; and the more he can be purged, the more effect the wine will have upon him, the more strength he will gain, and of course stand his evacuations better. Here we may draw this physiological corollary, the effect of stimulants, keep up an exact ratio in these cases with depletion. Thus let the effect of stimulants be =10, and depletion =20; increase depletion 20 the whole =40, the effect then of the same quantity of stimuli will be =20 though before it equalled only 10. The increase of the strenght might be demonstrated the same way, but not with so much truth, as it depends on a variety of circumstances.

The Nervous Fever with many other diseases often terminates in a salutary Diarrhœa. Were Physicians then to attend more to the admonitory cries of Nature, by obeying her indications, than pursue insidious phantoms; the night fogs, that float in the day sky of their own brain—that make the grave gape for the living, and Death champ his gory mouth, would they not succeed better in relieving the sufferings of their fellow beings.

Of what importance it is in these cases to excite timely artificial Diarrhœa's has been seen.

Throngh the agency of the par vagum, and great sympathetic nerve;

there is a most powerful relation kept up between the brain, the stomach, and whole of the prima-via; they mutually act and react upon one another; a blow on the head will produce vomiting, and vomiting vertigo. Torpor in the alimentary canal, which is nothing more than the want of irritability produces costiveness. The brain begins to sympathise; the result is melancholy. What costiveness then is to the alimentary canal melancholy is to the brain, as has long ago been observed: that is the brain catches torpor from the alimentary canal, and a piece of cheese, or bottle of brandy may produce it there—may be the cause of melancholy or hypochondriasis.

I once saw a young man, who told me he was much given to melancholy, and of costive habit; that he had been extremely dissipated, and a long time under the Physicians. The tone of his stomach was completely destroyed, and a morbid indolence prevailing. He was recommended to take mild cathartics three or four times a week, and live temperately; but he did not think any more of me as a Physician for this prescription, and neglected it until his symptoms increased when he thought it could do him no harm. After he had taken the medicine for some considerable time the torpor of his bowels gave way when the scales began to fall of from his understanding, and he gained with his health his usual brightness and vivacity.

Acting through the sympathy we have already seen existing between the brain, and abdominal viscera, I have always found cathartic medicines to have a salutary effect on the mind; even the confirmed delirium in Typhus Fever most frequently soon yields to them, when the Patient becomes watchful, and forgets the opake mists, that lately swum through his giddy brain, and recognised by his friends as a presage to those everlasting shades, which are said to cover the dead.

"Atra nox sempiterna mortuos circumveniebat."

Seized with this Fever the Patient's mind wades through glooms, and imperfect darkness until one continued night puts out the lantern of his soul, when he lies still, and exhibits but little more than simple organic life to the tearful eyes of his relatives, who surround him; his brain, his bowels, and whole system are in a torped condition. Even now cathartics will gradually remove this torpor when he startles as from enchantment, flashes his eyes round, and for a moment sees his danger in the countenance of his friends, and feels a consciousness of the fate, that awaits him; and again he falls away, and like Urydice to Orpheus seems to exclaim

"Iterum crudelia retro
Fata vocant, conditque
Natantia lumina somnus."

So a traveller in a stormy night loses his way, and wanders among the mountains, suddenly the ebon cheek of night is dimpled with a smile, a bright stream of light falls from the cloud, and for a moment he sees himself surrounded by rocky steeps, and trembles that the next step would have reduced him to a jelly.

Another proof of the harmony, and reciprocation of action between the brain, and abdominal viscera may be found among the phenomena of dreaming, so that I think it may be possible though there never have been so far as I know, that rules and regulations might be laid down for dreaming, that would as certainly produce dreams as the mushroon, beds contrived by the Europeans will produce mushroons. No one can be ignorant that if a person possessed of a weak, and irritable constitution on lying down shall take in his stomach a large quantity of stimulating, indigestible food, that it will produce a morbid effort of the understanding during the whole night; dissimilar, but not entirely so to a water machine whose flood-gates are not quite shut down; the accumulating impetus of the stream occasionally bursts through, and produces imperfect motions through the whole catenated arrangement of wheels in the machine.

It would be foreign from the views I have to take of the subject to enter so deeply into physiology, and metaphysics as would be required to explain satisfactorily the nature of dreams, and in what way they originate since my main object is to demonstrate how cathartic medicines act in destroying the symptoms of Typhus Fever.

Dr. Franklin, though he never made physiology professedly his study had some notion of this harmony when he reduced his food exclusively to vegetables; but without any vanity I think the Doctor was mistaken, for it is certainly a fact that if the action of the cerebral mass be not constantly supported by a stream of healthy vigorous blood, and vegetables alone cannot furnish this blood particularly in a person, who has been in the habit of eating flesh, the vigor of the understanding will vanish, as a mill runs slower, and feebler when her winter stream dries up in passing through the burning plains of a dry country.

Thus when a person falls off from health his brain being supported by a feeble current of vitiated blood; let his good humour, and spirits have been formerly what they may, he is now inclined to be darksome, and melancholy, every thing affects him differently; the world no longer is mentally the same to him, his best friends do not appear as usual though when he is among them he endeavors to appear as he used to do, he forces his vivacity because he knows they expect it of him, and his pride will not suffer them to have the least advantage over him.

The seat of this man's disease is in the chylo-poietic viscera, and not in the brain, or nerves, and nothing but the blind extravagance of empiricism would ever attempt to releave him by nervines.

There are but two possible ways, by which cathartics can do harm, the one by causing the intestines to become too irritable by suddenly removing their stimuli, the other by hurrying the nutriment out of the system before the lacteals can take it up, and convey it through the subclavian into the circulation of the blood; thereby cutting of the great support of nutrition.

'Tis plain a man in health ought not to take cathartics because the contents of the prima-via, and all his secretions are just such as they ought to be, such as his system requires; but when he is diseased these secretions become vitiated, and unhealthy, and act as morbid stimuli in destroying vital action. Cathartics now operating on the villous coat of the intestines cause the absorbing vessels to pour back the unhealthy juices they had taken up, and clear the whole alimentary canal of the fecal ingesta, and diseased secretions to the great relief, and comfort of the Patient. What can a sick man lose by taking seasonable cathartics, his stomach is not fit to digest food even if he had an appetite to receive it; he is not cut of from nutrition, for his disease has already done that for him before hand by destroying his digestive powers; or rather what may he not lose by not taking them when they are indicated: the absorbents keep on acting as well in disease as in health, and as soon as they have taken up the whole of the nutritive particles, they go to work on the vitiated secretions and fecal matter if they be not timely removed by cathartics, and pour what they can extract from them with all its acrimony into the circulation of the blood infuriating the fever, and turning death loose in every channel, and avenue of the body.

The blood thus charged is rendered less and less fit to support the action of the brain, the delirium becomes more and more confirmed; debility now advances apace, and the Patient sinks more rapidly to his grave.

Such in general appears to me must inevitably be the fate of those, whose bowels are allowed to remain costive when attacked violently by Typhus Fever, or any other inflammatory, acute disease of a similar nature.

Tonics, and Stimulants can never reach the seat of such maladies, like pitch thrown on a raging fire they may smother them for a moment, but they will break loose again, and be sure to bring death with them. Nothing will do without the alimentary tube be cleared.

Such conclusions I think my experience warrants independent of the physiological data, upon which they rest as truths.

I have observed the fecal matter thus retained become so extremely acrid as to excoriate the nates when discharged by stool, and destroy the life of vegetables if brought in contact with them.

No wonder then they should be so injurious when not timely evacuated; and scatter the seed of death through the system.

I have now endeavored to establish in a variety of instances the connection between the brain, and abdominal viscera, and show how cathartic medicines operate in releaving the delirium, and other symptoms of Typhus Fever by acting not only on the intestines, but also indirectly on the brain; and am unwilling to enlarge these pages, which were only intended at first for a newspaper publication, or I would like to make good what was said about dreaming by putting it

in such a light as even to challenge the conviction of skepticism itself, and I know too in a practical treatise on any disease of the body that too much metaphysicks, and physiology will not only be unpopular, but useless and unprofitable.

I here then close what I had to say on the nature, and treatment of Typhus Fever. How far I have succeeded in its developement by contemplating it as it relates to, and affects the animal functions, the only thread of inquiry, that can guide the Practitioner through the insidious, and perplexing maze of symptoms to the real source of disease, is left for others to determine. I can venture I believe to say one thing that the practice flows directly out of the laws of the animal economy as they are affected by the disease; and that it is safe, and to be depended upon I have sufficient experience to testify.

Nothing could be farther from me, and nothing could I believe myself capable, more painful, and mortifying than a disposition, or intention to excite a single unpleasant feeling in the bosom of any of my compeers in the profession; it is the success alone of the practice that is purely the cause of its publication.

If any one should be astonished at the depletion here recommended, let him recollect that depletion is more necessary in the cure of most all our diseases than those of higher latitudes; because we live as it were in the neighborhood of the Tropical regions, and during a greater part of the year our atmosphere is charged with a larger proportion of heat, which raises the play of chemical affinity in our climate to a comparatively higher key, wherefore the decomposition of animals, vegetables, and minerals goes on more rapidly, discharging their stimulating, noxious effluvia in the atmosphere, which seize on, and consume with voracity too much of the irritability of the animal fibres bringing on astheric debility as it has been very properly called, which to be reduced therefore requires more depletion than in climates where these noxious agents do not act so violently. Besides the heat itself of our long summers, though cooler than the summers northwardly acts powerfully as a stimulus, debilitates rapidly, and calls loudly for depletion.

I would not like to create a belief that I would tenaciously pursue principles, which would plunge me in the dark, but those, which lead up to the circles of unlimited light, and truth I would trace with untired assiduity.

PARERGA.

IN the general, unqualified observations above, I perceive my meaning may be liable to be mistaken, for surely there is great difference between thinking, and the motions of a machine, but cannot criticism be lenient when it is recollected that there is not a single word

in any language, but negatives, to express any thing beside material forms. It is the forms of matter alone we perceive in reality, that operate upon our senses. To them we have attached names, and to all other things of whose existence we are able to reason ourselves into a belief, we have attached negative names; that is they are things we know not, the opposite, or contrary of what we do know, and to form some system of the vast variety by which we are surrounded, and with which we are in contact they have been divided into cogitative, incogitative, &c.

The absurdity of such arbitrary divisions consists principally in cutting of all approximation of being, for even between mind, and matter there may be a great likeness, or similarity; forms appear to be to matter what thoughts are to mind, but we are equally ignorant of the cause of both. The forms of matter seem to work through the senses into mind, and either produce thoughts in it, or cause the mind to do so itself: but on the contrary we have no reason to believe that the thoughts of mind pass through the forms into matter, and produce in it, or cause it to produce itself, its forms. The original Mind existing every where in matter appears to be the sole cause of its forms, or modifications, and the play of these upon our minds the result of a particular adaptation, and constitution.

That it is the forms of matter we perceive, and about which we think, and every thing else we know beside but their shadow; something reflected from them, can be demonstrated from every religion, that ever has, or ever will exist.

Hence we behold Omnipotence arrayed in material forms, which he has received from us, hands, feet, &c. and were he to ask us the reason of this, we should hear the voice of the human race cry out in all ages at once, in one breath " we have got nothing, we know of nothing else to give.*

* It is not meant here to deny the existence of the Divine Being, and Spiritual Natures, nor even to insinuate that they are hypothetical, or ideal, only that a knowledge of their existence is derived to us by our reasoning on the impressions we receive from material bodies.

All such Beings, or Natures exist purely in our reasoning faculty, and to us they can have no other kind of entity, and we are just as certain of their existence as we are of the material forms from which we derive them.

Since nothing can act only where it is, and we live in matter, and cannot go out of it, and be what we are, how is it possible unless we go through this matter to them, or they come through it to us, unless the two worlds, or states come in contact we both inhabit, that we can get acquainted with them. But according to our notions of them they cannot come through matter to us because they have no relation to it, but having a relation we can go through it to them, that is perceive relations in matter, that do not belong to us, nor to matter but to a third kind of beings, which we distinguish by Spiritual Natures.

" From the things, which are perceived by us, &c. the Godhead plainly appears," is a reflection of the same kind with the above. The way to a belief of such beings is easy—men in the infancy of human nature passed, and repassed it.

All our ideas then except those flowing directly out of the mind, are material

Ye sublime, nature-abandoning religionists, soaring above the golden canopies of uncreated, unexisting worlds, fold up your pinions, be wisely religious by being rational, and fall back into the bosom of nature, where, when proper preparations, and changes shall be wrought for you, you shall find the nectar to be quaft a temple, and your God.

The unphilosophic Christian on contemplating the uncertainty, and rapid transition of material forms, which burst on the view like the scenery of a drama, and keep the world in perpetual freshness by exhibiting an exhaustless variety of novelty, and beauty; is afflicted at what he sees; change distracts him, the uncertainty of mortal things brings a heavy groan from the bottom of his heart; he sighs, and then feels sweet consolation by picturing an unchangeable condition of things beyond nature in pure, unsullied nihility, where he hopes to enjoy what this world can never afford; while he, who tempers his religion with reason, looks through nature as an optic glass, and with burning rapture descries his God enthroned, and surrounded by his works: the very things that grieved the other are his chief delight, and satisfaction because he views them differently; and instead of going out of nature, he moves upward through her until he arrives at that Point, from which he and she both originally emanated, and about which as something neither gravitating, nor emanating both must eternally gravitate.

It is these material forms modifying the mind of man, which have in all ages overshadowed a proper conception of the First Cause, which sculptured the marble into Gods, and set in being, and motion the vast Apparatus of the Pagan Mythology; and to contemplate the Divinity without them, will forever be as impossible as to think without making use of language.

No wonder then when we endeavor to express ourselves about the various beings with whose existence we have become acquainted, that we should call in metaphors to our aid, that is, describe things like those we would describe to illuminate our obscurities, or rather to darken them would be properer language, for we know in reality as little about those things we assume the formality of describing others by as those others themselves.

That an objection may be taken to our reasoning, if we dare call it so in the physiological terms we were necessiated to use, we are already apprized; and that in practical medicine they are words without meaning to some we are equally aware, but to us they have definite meanings, and have been used as such.

They might as well tell me there is no such thing as gravitation because I cannot see it, and know what its like, or that birds do not

ones, since we are obliged to think under material circumstances, with a material machine; and all our spiritual ones mutilations, or abstractions of our material ones, that is they are our material ideas with all their material qualities completely abnegated. Had there then been no matter there had been few ideas, which is agreeable to the prevailing philosophy of the times, and to the truth.

fly through the air because I cannot see the motion, which carries them along, it being an invisible thing; but in denying gravitation they also deny a plain matter of fact circumstance, that bodies fall to the ground.

CONCLUSION.

WHAT is life, has been a great subject of interesting enquiry in every annal of philosophy. Some conceived it to be a real substance, and started out to seek, and lay hold of it in its perfect nudity, but after they had toiled through many grievous volumes, and expended alas the greater part of their understanding found by its receding from them as fast as they approached, they were in pursuit of a real rainbow.

Life considered abstractedly is pure nothing. Like the flame of fire it is the result of a particular combination of circumstances, or the rolling of a ball, which originates from its rotundity, but we cannot say that roundness rolls, or stands still, nor that life lives, or dies; such expressions convey nothing into the mind except the vanity, and foolishness of him, who under the disguise of appearing learned, and profound uses them. The truth is when we pursue realities we soon come upon them, but when we seek what is not volumes count as trifles, hence his poet might have sung in endless song of Jason, and the golden fleece, which never were, and the Philosopher's stone, might fill innumerable quartos, without a single particle of the subject being exhausted.

The great topic of physiological dispute, whether life be, or be not "a forced state," seems strange when it is recollected, that it originated among men of the soundest talents. Life from its very nature can neither be a matter of spontaniety, nor of coercion, or force.—The ideas can never be made to coaptate, and of course neither the one, nor the other can be predicated of it, no more than elipticity, or angularity can be predicated of bravery, or goodness, or any other of the abstract virtues; notwithstanding the doctrine was countenanced, and taught by a late Teacher of Medicine Dr. D. who is recently dead.

Life can be a forced state in no other sense than the ship, which is now sailing on the ocean is a forced state, or condition of the trees, which once grew on the shore. That is the mechanic forces the trees to be ships, but in passing through the mechanical ceremony to the figure of a ship, the trees loose the character of their species by detruncation, and are no more trees; as the question now stands then what is it the mechanic forces to be ships? The answer would be something, that once was trees. It is not the trees then the mechanic

forces, but the deceitful result of what they once were. Here the subject spreads her sable plumes on the passing breeze, takes postage, and is gone forever like a bird in the night, leaving the Philosopher nothing but the vacancy she occupied with his pen full of ink, his eyes straining, and mouth wide open.

If life be a forced state, it must be forced by something, and that something must either possess self-generating coercive power, or be forced in its turn by something else; if it be not a self coercive power, and is forced by something else, the succession of force must at last end in something, that possesses force without being forced, or there can be a thing which possesses force, and not force at the same time.

All force must either emanate from a point, or exist essentially abroad, but there can be but one infinite eternal force, therefore all force, which apparently exists, and is exerted abroad emanates from what we may call a point of force, and has its existence there: thus the force, which throws the earth round her orbit is exerted in the sun, that of the moon round the earth in the earth, and that of the moon round the sun, a compound of the forces exerted both in the earth and sun; but we have no reason to believe to the contrary but that the force is only apparently exerted there by something else, or the sun must be the eternal point of force.

Does the timber in a ship force her to be what she is? And does she necessarily exist by this force? All timber then, were this the case, would necessarily be ships; or is it by the force of something else exerted in the timber? But the timber is forced itself to be what it is by the aggregate attraction of all its particles; so it is force upon force. How difficult it is to be benefitted by these kind of speculations is not hard to conceive.*

* All such reasonings attempting to explain the nature, or modus operandi of the existence of any being, are nothing better than looking at objects through an inverted telescope. We know not how things continue to be. In what way the supporting energy of nature stimulates, or applies itself to them so as to produce the continued phenomena of their existence.

Isolated in so remote a part of nature as we are, and so far separated whence all knowledge primarily springs, and fitted up as we are with so scanty an apparatus, or means of acquiring information, only a few medullery tubes, which at best can furnish us with but a very limitted correspondence with the beings we are among, it is utterly impossible we ever can make any advancement in the Divine Science of cosmogony. It is far above our intellectual accoutrement, and would require ideas we have no means of obtaining. Hence so much theorizing, and so little real knowledge among us.

No wonder some very good philosophers doubted whether we could know any thing really or not; whether our means of knowledge were adequate, or sufficiently perfect to insure us of the reality of any of the objects we think we perceive; believing that certainty might belong to a higher species of intelligence; and that we ourselves were not endowed with this perfection; while others riding swiftly away on the breezy seas of their own fancy, supplied by their ingenuity the natural deficiency of their sensitive apparatus, and saw the reality of their perceptions through the vista of a long catenation of reasoning. All animals were a condensation of a few gases.—Man himself was an inflected fibre ripening from a tube into a living animal. The

IN like manner we are told life is forced to be what it is by stimuli, that is life is " a forced state;" forced out of irritability by stimuli; life then must be in irritability, nor stimuli, nor any thing else could force it out; but it is equally as much the effect or result of stimuli as it is of irritability. This doctrine then instead of making irritability a principle of life, makes life exist in it, and stimuli a force unforced, which is absurd and brings us back where we set out " that life is neither spontaneous, nor forced, but the result or effect of a particular combination of circumstances.

Life like death is nothing abstractedly; it is also the effect or result of conditions, or circumstances, but of different relation to those of life, and both are complex ideas and mixt modes of physical being.

Were we to extend our views still farther, and lift our eyes from the narrow ground of prejudice, to take a bold look at things remote from human sense, and grasp at their real, ultimate natures as they sink below reasons' horizon, would it not appear, that crystallization,

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celestial spheres were cradled in vartices to perform their revolutions. The universe was a vast congeries of monads, or active, spiritual, extentionless particles endowed with perception, so that the motion of a body was the exertion, and volition of the particles, of which it was constituted, and no longer a vis insita, but an actual vis ipsa.—The earth, as well, as the other planets a splinter from an anciently fractured sun.—Muscular motion the detonation of a chemical air, &c. &c.

Notwithstanding, with the means we already have without any alteration, or addition we may yet cultivate a larger and closer acquaintance with nature. As yet, we have not got all the impressions from material bodies, our sensitive organs are capable of receiving, and conveying to the Faculty of perception; nor has our understanding been able to make the best use of the perception of these impressions for the want of sufficient comparison. The physical changes our planet has undergone, and the turbulent revolutions, and commotions of society have, from age to age, broken in upon our studies, destroyed our labor, and made rents in the thread of our meditations driving us from the horizon where the light of truth was beginning to beam, back to the mental night of nature. Again, we have emerged, and again we have been driven back. When our Heavens were beginning to fair away, War has blown his trumpet, replaced our clouds, and kept our intellect in the shade. And thus have we been striving, and prevented from making a full comparison of our perceptions of natural beings, deducing the truth, and extending our knowledge.

New compositions and decompositions of bodies, will to all eternity (nature and ourselves remaining the same,) make new impressions upon us, discover to us new qualities or kinds of matter, destroy, or rather correct old ones, which through error we had conceived to exist, and be the means of extending our knowledge to any finite length.

The ways and sources of knowledge then, upon which the human race hereafter will have to depend, are the impressions from new material modes, which may exist, the recognition of those which have existed, but not yet made any impression on their senses, the correction of mistaken sensations, and the general comparison of all the perceptions of these impressions so far as their limited powers will enable them.

Here then is an almost unlimited field for the future advancement of science, and a glorious and ample theatre for the display and exertions of Philosophy. Were the malignant passions of Man, which propel him from his own happiness to be finally tranquilized, which would replace the Dove of Peace where the Eagle of Mars now sits with his beak stained in the blood of nations, our knowledge would advance in geometrical proportion, and the mind of man would acquire, notwithstanding the brevity of life, such an omniscience as would be truly astonishing to one, who lives in the present times.

vegetation and animalization, are all modifications of the great principle, which fills Nature with life, as chemical affinity, cohesive and repulsive attraction, the attraction of electricity, Galvanism, and the load-stone may all be modifications of the great principle of gravity, which impresses on and fills every particle of matter with motion.

Animals then, as well, as vegetables are living crystals, not formed by the laws of crystallization, but by a species of action of the same genus with it.

That it is the easiest matter in the world to guess at things, how things are, and dangerous to generalize too far I am sensible, but is not the greater part of what we think we know of this kind of knowledge.

The particles of simple matter in passing through the animalizing process, or any other process to life, do not lose nor suspend their gravitating energy; but keep it always with them, which causes the motions of animals to be a compound of living and gravitating.—Were it not so vegetables could not keep their roots in the ground, and animals would float a wreck on top the atmosphere, but by causing that process, which makes them animals not to destroy nor suspend the gravitation of the dead particles, out of which they are formed, they are enabled to cling fast to the great system of things where they harmonize, and nothing can put the extreme sagacity of the contriver in a more incontestible light, than this single, beautiful circumstance.

As irritability, which is an essential condition of life, is always accumulating in living matter, and stimuli always destroying it by converting it into life, into vital motions; like living matter generating irritability, may not simple, dead matter be always generating gravity, which something unknown to us is always destroying by converting into gravitation, into all the motions we see existing and displayed in the material world.

If this conjecture be true, it follows that the whole mass of matter in any given time generates the same quantity of gravity, and the same destroyed, converted into gravitation, as the aggregate motions of all material bodies appear to be constantly the same. If it were not so, natural bodies would sometimes move faster, and sometimes slower, a rock in the days of Pythagoras would fall from a given height sooner than it will now, or sooner now than then, which we have no reason to believe to be the case. The occasional variation of the momentum of the Heavenly Bodies when they come near and disturb one another is no objection, for they quickly regain their lost motion when they have passed by, and got out of one another's too severe attraction.

If the powers of matter to generate gravity be indefinite, I do not see to the contrary but material bodies may keep on in everlasting motion, as we can perceive no reason why gravity may not always be converted into gravitation.

What gravity then is to gravitation, to the motions of all material bodies; irritability is to irritation or life, to the motions of all living bodies.

But gravity, which primarily moves every thing is itself without motion, that is, it is not necessary it should first move itself in order to move other things, for if it could move itself, pass out of one body into another, there might be a particle without any, and that particle then would be in a state of complete, unalterable rest, if therefore gravity were to move, or be moveable, it would destroy the motions of all those bodies it moves; it then moves every thing without itself being moved. So irritability, which operated upon by stimuli gives life to every thing containing it, is itself without life, not alive.

In venturing to run this parallel, it does appear that the division of matter into animate and inanimate, or living and dead is not only improper, but unphilosophic; for gravitation seems to be the exertion of some kind of life in what has been called dead matter. Because organization is the only way, or manner, in which life is exhibited to, and recognized by our senses in our present mode of existence, ought we to think that organization, which is merely a preparation, a theatre for it to act in, is essential to it, and it cannot exist under any other condition. Even, to admit the thought or supposition of such a thing, would be to presume we understand the plan and whole System of Nature.

May it not be possible and probable then, if we could see correctly that the difference, between living, organized, and dead, unorganized matter, is but very trifling indeed. Let us recollect what a vast commerce is carried on between them, a mutual exchange of condition; with what ease and rapidity they pass from one state to the other, and live as it were in each other's embrace. By virtue of assimilation, millions and millions of weight every moment enter into the beautiful forms of animation, while the same quantity of living matter passes through absorption out of the living to constitute the bodies of the unanimated Kingdoms of Nature.

IN speaking of Typhus Delirium it was observed by me that the vigor and power of the understanding, was increased by increasing vascular action; and that this took place on account of a greater quantity of blood passing in a given time through the brain, and hurrying its secretion, which in some way seems to give origin to the actions of the mind. As a circumstance carrying with it something like proof we know there are many Orators, who are unable to speak until the sanguiferous system is excited by wine when they appear supernatural, and seem inspired. When the aged Veteran stooping under the snowy pressure of four score, quaffs his sparkling draught, we behold him with surprize singing the amorous ditties of his youth, or weeping like an infant over the forgotten pleasures of former days,

of which a vestige had not been in his recollection for forty years past. He seems like one fresh awaked from the dead, or one whose mask has been suddenly removed. Such is the powerful influence of alcohol in producing mental phenomena.

Whatever then we conclude increases or excites the action of the sanguiferous system, which will in its turn arouse the action of the brain, also excites and increases the actions, or powers of the mind; and ceteris paribus, whatever depresses it, depresses also the mental powers. Hence, the division of those modes of mental feeling or perception, which are improperly called Passions, into exhilarating and sedative; meaning by these terms the constitutional as well as mental affection they produce, or with which they are attended.—They are in reality the mental perception of the impressions sent up to the brain from the whole of the digestive apparatus or nutritive organs united by a distinct system of nerves, the sympatheticks, which take no part in our sensations of external beings.

The nutritive organs thus united seem to be the seat of our passions, or moral qualities, as the brain, in which are united all the organs of the external senses is the seat of our perceptions. When these impressions are strong, and are returned from the brain back upon the nutritive organs whence they sprung; some of them excite a sudden exertion of the powers of life probably by an augmentation of the irritable principle, while others check them, and seem to parralize the whole body probably by a detraction or sudden dissipation of the irritable principle.. In the first state, the body seems deprived of its real gravity, the mind is vigorous and active; or there is a plethora, or turgesence about the pericardium. Hence the term "burst with rage." In the latter, the body seems weighed down with a heavy load, the diaphragm is sometimes affected, and there is difficulty of respiration.

If then the *brain* as just observed, be the seat and material cause (so far as the cause may be material) of our intellectual operations, the mysterious elaboratory, if we may call it so, in which all our impressions from the external world, as well, as those from the nutritive organs themselves by changes or affinities purely hyperchymical, are refined, separated, compounded, wrought into knowledge; finally translated, and become a part of the intellectual world; the nutritive *organs* fitted up, and destined to the preservation of the body during every period of its organization and life, are the seat, and material cause of our passions, or moral qualities, which shape our way to the joys or sorrows of that immortality, which is the proud and boasted destiny of the soul.

But we must reserve this physiology to be looked more nicely into hereafter.

The way or manner then in which the Passions produce their effect on the animal economy, is easily understood, so far as it is un-

derstandable by us. The impressions of them rushing from the brain into the organs, which are their proper seat, by ways of which there is no certainty, either increase the activity of their functions, the effect of which instantly pervades the whole constitution, which thrills with ten fold life while the mind glows fervidly with pleasure or rage, or diminish or suspend them altogether, when both body and mind seem to wait existence as in extreme terror. Hence in tragedy terror is speechless and frozen. Because, fear diminishes life of which we are so fond it excites our indignation, it is a mean thing, and we despise it, even in animals, and that too by the example of reverend antiquity.

When these impressions are communicated with too much violence they snap the springs of life. The Roman matron, who died at the reception of her son, whom she thought had been slain in battle, is example.

Opposed to Fear, with regard to its influence upon us, is Love, which powerfully stimulates the sanguineous system, produces an agreeable ebullition of life, fills the mind with the gayest and finest wrought images, the base or primordia of all real poetry, is a chord of music in the march of time, which has been so nicely touched by Virgil, Moore, and others, that it will yield its melody to all futurity, and is at once both a compliment and ornament to human Nature. Its siren voice is every where heard calming the distractions and inquietudes of grief, wandering up and down every river and grove, making them sacred to posterity: every mind hangs with classic ecstacy on the Twede, the groves of Idalæa and Daphne. It is the germ of happiness forever springing in the bosom. It keeps its eyes upon us when we pass into the other world, and beautifies our tomb when we are gone.

Where else does Nature present such an astonishing unique, such a consummate harmony as in the sexes, each containing within itself those elements, which, setting aside the shortness of life, would over stock eternity with happiness and enjoyment.

Drawn from our make by its charms, and longing to submit and live perpetually under its soothing stimulus, we approach the tender creature, who stimulates us to a more perfect degree of existence, and higher perception of enjoyment. Blushing in the deepest vermillion of beauty, her voice fine and soft, she resembles primeval Summer seated in a bed of roses, when Phœbus first saluted our world from his car of fire. Hence the origin of matrimony.

According to its physiology love increases the sum of those stimuli or powers, which are exerted in the production of life. Does not matrimony then by increasing the quantity of life promote longevity, and do not those, who are strangers to it, fade and decay at an earlier period? But this by the by.

But what mind is we never can know. We have no sense by which

we are able to perceive it. Like the modes of matter we can only be sensible of its modifications, the changes, by its own native activity are produced in itself, or those it receives from other beings by its capacity to be acted upon by them, or by their capacity and adaptation, without its nature being altered. Since then we are equally ignorant both of mind and matter, there never can be any proof that they are essentially different from each other. I can retrace the beauties of Virgil, or think on the horrors of the Inquisition, and after I have done my mind is the same as before I began; in like manner a portion of matter may gaseously glide through space, afterwards form part of a mineral or living animal, and be the same as before it began these changes.

Here then is a coincidence, and no philosopher can ever say what may be the difference between these motions. Would such a coincidence or harmony exist if there were no similarity of Nature or cause? Ignorance is the matrix of chance and accounts for nothing.

As all configured beings derive their motion and existence from one simple cause, must they not all have at least one common relation to this cause, and will not this relation embrace and unite them all together making one indissoluble whole. It is impossible therefore any one being can be entirely dissimilar to any other, because if it were possible those, which could be dissimilar, could exist independent of one another, and more than Nature, nihility might be peopled with Gods; which is as contrary to mathematics as religion.

Immortality may be defined the endless continuance of the relation of any configured being to the One, whose essence is to exist, and mortality the loss of this relation, which may emphatically be called the relation of existence.

There is a belief, which haunts the human breast that matter will one day loose being. Is there any necessity for it? Will one day the plenitude of that power fail, which primevally stretched out space in the very bosom of nihility, and replenished it with the beautiful furniture of matter, some moving in animation, and administering to intelligence, others rolling amid the splendour of their own luminous effusions, while others fling them abroad until from God down Nature to nothing glows in one solid tissue of light.*

Is there any thing more in mind, independent of the will of the Creator, than in matter, which will enable it to continue and preserve its relation of existence? Have we ever known any thing to loose being, why then do we suspect that which we never knew to happen?

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* The nocturnal shades of the Planets being nothing but the mere obstruction of the solar fluid, or light, and extending but little way in the Heavens, would make no deficiency in the general illumination to an eye, which could take in the whole circumference of Nature, repelling back the oceans of light, which have been accumulating almost from eternity from millions of suns.

However, furnished with such a capacity for investigation as we are there appears to us to be a vast discrepance between the two: matter seeming to act the inferior part, being a mere scaffolding, upon which life and intelligence perform their functions.

In speaking just now of the secretary function of the encephalic organ as connected with thought, we had no disposition, as some who were over ingenious, might imagine, to insinuate whether the mind be an organic result or modality; or a distinct, homogenious, active Nature, endowed with principles of motion entirely dissimilar to those constituting animation or vitality. In favour of the former opinion we know that it is fully evolved or developed with the perfection of the animal functions; that it is a constant companion, and sympathizer with them; that with them it fades and decays; and that whatever comes in contact with the living surface interwoven with medullery chords, forming a sensible tissue, produces correspondent changes in it: in favour of the latter we have Divine Revelation.

To fix or locate it in the Pineal gland, cerebral mass and medulla spinalis, or any other part of the living whole, would be equally absurd. It is an illocal being or nature, has no relation to space, and of course can have no place.

What pity a science so beautiful, and which too might be so useful as that of the mind, is not more studied and cultivated in the present age.

With what pleasure do we avert our eye to the present state of the science, since the exertions of a few sound headed philosophers, like the spirit of Omnipotence (dare we the comparison) moving over and raising up the beautiful fabric of Nature, out of the dark abyss of ancient chaos, in which had been suspended without figure from eternity, the primordia of her stupendous structure, have given form to, and extracted the system of modern chemistry out of what was little better than chaos, Alchymy, in which had been suspended for ages the primordia of the real science, which is now advancing apace either confirming the reality of what had since been thought only sublime fiction, or throwing it back into oblivious darkness to prevent its obstructing the progress of truth.

In like manner, may we not hope the same revolution in metaphysicks, since the labour bestowed upon it by Locke, Reid, Beattie, Stewart, Crichton, Arnold, Malebranche, Hartley, and many others, who have illuminated as much, or more by their eccentricity as those, who have glided smoothly along the equinox of the intellectual Heavens; beside, what has been done in the neighbouring science of physiology by Richerand, Bichat, and a long catalogue of the most learned and profound geniuses.

From this view of the subject it would be doing no violence to reason, to anticipate in a few centuries the newspapers of the day will teem with new discoveries in the science of mind, and metaphysical, as well as Physical Science, have her Patent Screws and Steam

Engines not moved by the expansive force of caloric, but by some new and unknown power of intellect.

Like the discovery of the expansive energy of caloric, applied to mechanical purposes, which may operate for millions of years to come to the benefit and improvement of the condition of human nature, may not some new mental agent be discovered, which will operate as a direct stimulus on the mind, and be equally as valuable in facilitating mental happiness, as the former in expediting human labour and convenience?

To feel more than ordinary pleasure in the present state of our improvement, we are under the injurious necessity of stimulating or forcing it out of the mind, by stimulating the corporeal organs with noxious agents, which injure their functions, and bring on premature old age and death. We are not contented with the sober and regular influx of pleasure Nature elaborates, and pours into the mind from the regular, harmonious action of the vital functions, but we unwelcomely and illegitimately extort it from her by Balls, Opium, Wine, Tobacco, &c.

May not Metaphysicks and the branches of science related to it, yet furnish an antidote for these evils of our happiness in the discovery of an agent, which will act on the mind without interrupting the animal functions, when our segars and gay dances will be thought of no more, the rose of health, bloom on the cheek of age, the functions of animal life cease to act of their own accord; and it will rather be said that we cease to live, than die; and human nature may survive to see the "Golden Age" of happiness ushered in under the reign of improved Metaphysicks.

Behold, for a moment, what a large number of our species, is engaged in preparing and manufacturing the implements and means of our dissipation, which do no good, but injure us. Do they produce our happiness, they do it imperfectly and bunglingly, and lay a tax upon our existence, so that almost half of human labour, is done to no purpose.

How much would be gained by the study of a science, which would explain to us the numerous relations by which we are connected to external things, as well as those operations, which are purely mental, which would correct the labour and toil of our species, directed to improper ends, and form a system of action, harmonious with ourselves, and the vast system of physical being in which we are enveloped and a part; at once adapted to call into action and fruition every possible degree of pleasure, of which the nature of our structure and the exciting agents, which act upon it, are capable or susceptible.

But, in looking forward at progressive science, upon which the happiness and welfare, if not the preservation of his species depend, we do not support the foolish hypothesis of the perfectability of man,

only, that though he never can understand himself he can obtain a knowledge approximating nearer, than he now possesses.

Had some person, who could have surveyed the progress of human discovery and improvement, told our Ancestors that their offspring, instead of the heavy armour of bows, shields and javelins, would one day fight their battles with Thunder; that the salts, which were then silently shooting into crystals in the mountain cave and the sulphurs, exuding from volcanic fires, would furnish this Thunder; that the invincible arms of Him whom they esteemed, as their Protector, the Father of Gods, the Immortal Sire of Nature, those arms manufactured by Vulcan in the flames of Ætna, would themselves be arrested and plucked from the skies, how it would have shocked their credulity; how could they have believed that, which so far transcended all bounds of their knowledge. But could they, like the natives of Otaheite or Owyhee, in the voyages of Cook, have suddenly experienced the effect and power,* like them, they would have been altogether confounded.

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* How the Ancient Warriors would have admired our Artillery, how much superior to their Elephants and Battering Rams. How paltry indeed would now appear all the renowned exploits of that Hero, who in the rage of conquest set bounds to the world, contrasted with those of modern nations, contending for victory.

Could Archemides and Pythagoras, with all their boasted acquirements, have discovered such things, how they would have been delighted; the latter then, with propriety, might have changed his joyful triumph from "Eureka, Eureka!" to "Eoikos Athanaton!"

Here, with regard to the mechanical arts, it is worth remark, that as it is probable all the principles of motion, contrived by the Creator for the preservation and regulation of the material Universe, are already known, as far as they can be known by us, so that all those, which are hereafter discovered, should there be any, may be resolved into those already understood, the future advancement of mechanicks, will depend on the different application of the power, and not on any new principle of motion. For instance: what is the Steam Boat, but a great Gun, which shoots or propels its barrel, and what does it mechanically differ from that ordnance, but in the different application of its power; both being resolvable into repulsive attraction or affinity. The Ancients knew and taught this attraction, as well as other principles of motion. The laws or ways, by which these principles act, still, stand open for the investigation and improvement of future ages; we having only traced, corrected and extended them to new phenomena, and incorperated them into a new system, which is still far from perfect.

The new substances, recently discovered, Chlorine, Iodine, Galvanism, and Electricity, the latter of which is not entirely new, though lately investigated, have the same principles of motion, as other bodies. Here I beg leave to risque a conjecture, and still there will be great room for guessing. May not Electricity, Light and Galvanism, as we have already detected caloric in a latent, be modifications of its active state: or may not all of them be modifications of something unknown to us, which, when chemically acted upon by oxygen, Chlorine, Iodine, Fluorine, and substances yet to be discovered, produce or generate Caloric, Galvanism, &c. (The existence of Fluorine is now pretty well ascertained.)

Here, for the sake of Truth and Science, I would observe, what is meant by *active* and *latent* states of Caloric? Certainly, nothing more, than a modification

It has already been laid down, that provided society could be freed from the distractions of war and every other agent, which tends to its disorganization, the means of our knowledge are sufficient to carry our researches to any assignable limit.

As yet, the Science of Mind is in its infancy; could we, for a moment, step forward and stand before that veil, which separates the

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of sensation in us, and may not the slightest difference in bodies, produce vast difference in our perceptions of them; and can we, without experience, resist the conclusion, that this perceptive difference really exists among them. The Creator is honest, and we are not deceived, there really exists what we perceive: Carbon and the Diamond then, are really different things, as they are different in our perception: and the Rainbow a great red arch in the Heavens, as we perceive it to be. Honesty is relative, and cannot be predicated of such a particular being, as the Creator.

But, what are bodies or the qualities of bodies to us, but the perception of changes, produced in us by unperceived, unknown causes? And we imagining, that these changes partake of the substantial nature of what produces them, is the source of all our error. What we perceive of bodies is one thing, a motion or motions propagated through the nerves to the brain, they themselves, entirely another; as the tree blown down, is not the wind, the wood, not the fire which consumes it, the picture, not the man; and their identification, as just pointed out, is the rock on which we split. Certainly, there is nothing more of smoothness, roughness, sweetness, &c. in bodies, than there is fire, which burns fire, trees, which blow down trees, &c. and to presume the one, would be as great a perversion, as the other. They can be neither more, nor less, than the perception of motions, excited in our nerves, and there is no more reason for believing there are any such things in the external world, than there is for believing a man, because, he lives in a brick house, partakes of brick, in wood, of wood; because, two things are in the same place, or accompany each other, they are, therefore, the same thing.

Through what a beautiful abstraction, like the sight of the Sun after a misty night, do we here perceive the truth, and cast off the fetters of prejudice. What are all the motions of organized bodies, but a nobler Mechanicks, and the sensation and perception of things, but a sublime Chemistry, as well as language will lay hold of it, spiritually sympathizing with the substance of the understanding.

Admitting, what would be impossible, the qualities of bodies could be regularly introduced to the understanding, they would be so modified and altered by its action upon them, for I consider the understanding must act before perception, that, even then, we could have no notion of what they originally were, no more than we could know, if it had never been analized, that water, in its elementary state, consisted of two gasses, in all their properties, perfectly discrepant from itself: and should we hereafter discover what it is, we now call sweetness, tangibleness, &c. will we not be as much surprized, as the Chymist, who demonstrated, to the confutation of all former opinions, that water consisted of two airs. O Nature! how gratifying and delightful to get the least glimpse of thee. If we necessarily mistake the meaning of thy operations now, we hope not always to do so. We are unable to see the Instruments with which thou workest: All our boasted power and strength are thine, applied at our will to our contrivances. When we depart from thee, or err from the laws of thy Great Mechanicks, we accomplish nothing, our machine does not move: but when we operate in concert we are the author of wonders, and our vanity assimilates us to a blind insect, which lighting on an Elephant in the desert, imagines itself the

future from the past, might not we ourselves be as much astonished, at the means and powers of mental enjoyment, modern ages will derive from the study of the organ itself, of which the perception of pleasure is a quality or function, as the Natives of the South Seas, when they first become acquainted with the Arts of civilized Nations.

Here, for a moment, we must stop to take some general view of a subject naturally obscure. Good and Pleasure, Evil and Pain, have always been associated, as cause and effect; at the same moment, that the one gave origin to the immortality of the soul, the resurrection or metempsychosis, the other presented the desponding hope of man with the soothing doctrines of Annihilation. That men, who by Nature are similar, in framing their Religious Systems, should have thought so widely different, is surprizing; but surprize will cease, if we will look into their organic structure for the cause; for where else can we expect to find a just explanation of phenomena so peculiar.

This Pleasure and Pain can be nothing beside different perceptive degrees of the same thing, the exertion of a relation or sympathy, uniting and existing between the perceptive Nature or Faculty, and organic moleculæ of the body.

I hold my cold hand to the fire, I feel pleasure, I continue it, I have the perception of severe pain. Here, while the organic moleculæ are absciuded from life, by the de-organizing action of the fire, the Faculty of perception is drawn into sympathy—the result is pain. Contemplating then our relations, as they are, were a system composed during the continuance of this severe sensation, would it not, stimulated by hope, be likely to teach the final termination of the pain by the perfect annihilation of that, which perceives it; and were another formed, while the stimulus of pleasing sensations reigned predominant, should we not see pleasure eternized through the immortality of the soul, and perfect resuscitation of the body. Before then, the light of Revelation, was not the sting of an insect or bite of a serpent, sufficient indirectly, to be the secret cause of those splendid systems of Theology, contrived to sweep away the pains of futurity by Annihilation, which have been poured, from the Ancient Schools, on future times, and which will continue to be studied and admired by the incredulous, while we are organically modifiable as we are? How easy it is to perceive all these apparently discrepant schemes or systems running into, and aiming at the same thing, the perfect absence or freedom from pain: and here, too, we perceive the

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cause of the movements of his enormous body. We have many Instruments, and do but little, thou mayest, if we could see it, with the same, do all things, arouse the thunder of volcanoes, enrage the deep with tempests, expand the vernal flower, lift the Comet over its toil-some, steep Aphelion, propel our Steam Neptunean, make each star plow its way along the blue-waved seas of Æther.—

primordia or first elements of Religion, rising up out of our organic changes, the perceptive Nature sympathizing. At first it is a small meteor, but receiving the light of Revelation as it advances, the circle of its illumination expands, until eternity is its only limit.

According to our physiology, all bodies or Stimuli by acting upon us, tend to destroy our susceptibility, so that, after a while, they wear themselves out, and we no longer are capable of being acted upon by them. It has been asked if this may not be the cause of death; the irritable or vital principle, having lasted, until, it has worn out all the ordinary Stimuli, which produced life, is no longer able to be acted upon, so as to afford vital phenomena; and death, which is a new and natural phenomenon, is the consequence. If we have no reason to believe the principle of life itself ever wears out, may not Chemistry, hereafter, furnish new and powerful Stimuli, which, after all the ordinary and natural ones, have worn themselves out, will still act on the living Principle, and produce life, so that, instead of forty or fifty, our lives may be spun out to any limited number of years? Why not, if we can manufacture Stimuli sufficient, keep life always going?

So great and powerful an appetency to act on the living Principle, have some Stimuli, that they exhaust or wear themselves out at once, on their first admission; such as the variolus matter of the Small Pox, Measles, &c. while others, of less appetency, wear out more slowly, as the pleasure of a favorite Tune or Song, a Story or Romance, all our Juvenile Pleasures, the sudden loss or acquirement of Fortune, absence of one's Friend, Nostalgia, the death of a Relation, the Grief of unfortunate Love, &c. Hence we vulgarly say "Time is a cure for grief." But surviving, we shall gradually dismiss them all, triumph alike over our pleasures and pains, and at last retreat to that common rest, to that perfect absence from Stimuli, which none have escaped.

Every moment during our existence, the living, organic moleculæ are becoming hyper-vitalized or too full of life, are then, for reasons unknown to us, separated or de-vitalized by the Absorbents, and conveyed out of the system by suitable emunctories, while their place is supplied by Nutrition with new ones, which, in their turn, meet with the same fate, so that our life is an aggregate of innumerable, little, ephemeral lives, which, in the same moment, pass through every degree of vitalization, and by others succeeding them, the general or great, aggregate life is kept up, as the stream, which constantly flows by, is kept full by a supply of the same quantity from the fountain. May it not be, that the living solids constantly throw off their substance, on account of the moleculæ losing their susceptibility by the action of the Stimuli vitally exerted, and they then being useless are rejected or thrown out, for the purpose of introducing others with new susceptibility; and by this means, life,

which otherwise would last but a moment, is continued through a number of years. If the Vital Principle does not wear out, nor exhaust itself, does not Death take place on account of Nature having not furnished a sufficient quantity of the moleculæ, suitable to be assimilated and vitally excited, so as to keep it always going; and if it does, is not Death the mere consequence of the living moleculæ having lost their Stimulable Susceptibility, or in other words, worn themselves out in generating life, according to laws of living matter already treated? If this last conjecture be right, the age of every animal, bears an exact ratio to the quantity of Vital Energy; that is, an animal, endowed with a sufficiency to assimilate one hundred distinct sets of moleculæ, will live as long again as one, capable of assilating only half that number; for we have no reason to believe to the contrary, but they all make their approach to exit, in every species of animated form, with the same, uniform velocity. Is it not likely, the extremely short life of the Ephemera is occasioned, by the incapacity of the Vital Power to assimilate new moleculæ, after the first ones are worn out?

How accurately must these new particles be fitted in our frame, since, our physiognomy and figure constantly remain the same!—And how important in Physiology and the Practice must be the Stomach, the great receptacle and elaboratory, emphatically the *portal* between the animate and inanimate Kingdoms of Nature! Contemplating this subject, Chaptall thought it not impossible, but all the dust on which we now tread, may be the sacred relick of former existences. What secrete impetus is this, which does not suffer any particle of matter to remain long in a vitalized state, which hurries every thing along in such rapid haste! May not the end of all its actions be, the vitalizing over and over again every particle of matter, in the vast fabrick of Nature; and would it not be more philosophic to fix the essence of matter in vitalizability, than in extension?

In what way the mind passes along, keeping pace with Vitality, from one set of living moleculæ to another, and preserving, in its march, its own identity, we have no pretensions to understand; neither do we think the attempt of Metaphysicians at an explanation, by fixing identity in consciousness, at all satisfactory. Could we conceive our thoughts to be, what we may call *Mental Moleculae*, produced by unknown, physical laws, and bearing the same relation to the mind, that the organic moleculæ do to life; and each one constituting of itself what we may term a *menticula*, and the aggregate whole, what we vulgarly consider our *mind;* the difficulty might be solved by progressive motion or actual translation. But if our mind be what we think it is, a real bodiless or spiritual substance, and our thoughts its legitimate phenomena, then there can be no translation; but if we can conceive it existing abstract and free from time and space, as it probably does, we can also conceive it to agree as well

with one set of organic molecules, as an other, and be the same at any two periods of our lives.

Like a traveller in a strange country, who wanders at dusky twilight into the solitude of the desert, his senses, by being free and abstracted from all ordinary Stimuli, are rendered doubly susceptible; the scream of the wild beast, the rustling of the gale among Primeval Cedars and Firs, Heaven-daring Sylvæ, untutored to the axe, Nurslings and Pride of a thousand Summers, which, invigorated with the dewy Nectar of Aurora, stood up and wrestled with the Whirlwind of "Elder Times," all, tend to alarm him; the odour of wild flowers stimulates his sense with delight, and here and there, he descries in the sand, the footsteps of some wanderer; like him, we have now strayed abroad, and taken our stand on the frontiers of the Human Mind. All resembles the enchantment of the Pole, when the Sun is withdrawing his light; here and there is descried the vestige of some straggling Philosopher; the lamp of Human Reason shines dimly, the intellect staggers, and just before us are those deep shades, unpenetrated by the powerless light of the mind of mortals, forming a campaign-country between us and Omniscience, where he resides in sublime solitude.

O Philosophy, how little able thou art to propel the mind from the sluggish point on which it hangs, into those vast recesses of knowledge and wisdom, which mock thy efforts, as the rocky beach, the waves of the Ocean!

In glancing at the means and powers, by which the aggregate as well as individual happiness of our species, may be improved, I do not take upon me to enquire, whether all our sensations are either necessarily pleasurable or painful, whether the pleasure or pain relates exclusively to the mind or body, or to both; but only shall observe, that all of them, as may be gathered from what has already been said, whether pleasurable or painful, agreeably to certain laws, instantly vanish, unless, the Stimuli, by which they were originally excited be constantly applied, which can last themselves only for a time, or they be reproduced in the mind by the memory. When sensibility is converted into sensation, by the action of any Stimulus, *perception*, which is purely a mental exertion, may or may not take place, and if it do not, I cannot conceive that memory or recollection can be exerted by the mind, so that the sensation must be entirely lost, unless, again excited by the actual Stimulus. Under such circumstances I think neither pleasure nor pain belongs to the sensation. Our attention being engaged, a clock may audably strike in the room, and unless we go and examine the indices, we can neither recollect nor be sensible of it, there being merely sensation without perception, for we cannot doubt but the Auditory Nerve obeyed the Stimulus.

Pleasure and Pain, we have stated, can be nothing but different perceptive degrees of the same thing, and we may add, are they not

land marks to each other, that point each other out, and we thereby become sensible of them, as we, were it not for bodies or the movement of bodies, which mark or point them out to us, could have no notion of time or space? Are we always sensible when we have a pleasurable sensation, or is not the pleasure for the most part perceived after the sensation has passed by, and we come to compare it with some one of more recent date? Why do we recur with such enthusiasm to the darling pleasures of our Juvenile Years, and hang upon them with such satisfaction? Is it because in advanced age, when the structure becomes more ossified, and the fluids, probably the fluid too of the medullery or nervous matter, become more inspissated, and the sentient fibres or surface more solidified, our sensations are *fuller of* bitterness, or do we do them injustice by comparison?

Such then is our make, that Pain as well as Pleasure, if allowed to continue, not like the liver of the truly pitiable Prometheus, which grew again as fast as consumed by the Vulture, will exterminate itself. The precise quantity of Pleasure or Pain any particular object or Stimulus is capable of exciting, will depend on the frequency, with which it is used, and its capacity to wear itself out, or in other language, destroy susceptibility.

A deep, impenetrable gloom has been cast over the subject of human happiness and misery; which are easily enough understood, if we will go rightly to work, by the Treatises of abstract Men, whose whole attention has been directed to the mind and its operations, without ever condescending once to look down into the organic structure, where all their phenomena are displayed, and with which they maintain an inseparable connection. When Pleasure is let in, how the Epigastric Centre or Similunar Ganglion thrills! When there is sadness, how leaden and heavy! When the Understanding is at work, into what strong sympathetic action the brain and stomach are thrown! and are we to gain nothing by the observation and study of such interesting phenomena!

Without then, a revolution in Physical Laws, neither the study of Metaphysicks nor any other Science, can secure us a state of abstract, uninterrupted pleasure; and in all that has been said, it is only meant, our happiness is improvable, not perfectible. The pleasures, arising out of the Study of Physicks, are of two kinds. First. By contemplating Nature, Man, who at first was purely a local being, rises up out of, and extends himself to all beings, and enjoys a station between his original self and Creator. This extension or enlargement of his existence, which he acquires by the exertion and evolvement of his intellects, is a great source of comfort and happiness to him. And secondly. By easier methods and shorter ways he is enabled to come at his nutriment, which is essential to him as an animal, and constitutes him an inferior kind of pleasure, which we may call for distinctions' sake the *gaudium animalium*. This last kind

is that, which flows directly out of riches, which in their acquirement cause so much strife and bitterness, and which constitutes the happiness of the larger number of the species, on account of being situated so near, and possessing so powerful a sympathy for their organization. The former maintains but a very feeble and distant relation to our corporal structure, so that all the purposes of life can go on without it, and therefore, there are but few who straggle from the common, approved way of life to cultivate it, and they who do are not treated better than burlesques upon the species: or the Grecian Sage had not died as he did; the Divine Tassos' days had not flown away in prison, in sorrowful absence of his Eleonora, the tombs of St. Pierre and others would distinguish themselves to the travellers eye, as their writings do to the Student of Nature.

The progress of Science has produced and offered to us a great number of Stimuli entirely new, which have created in us as we may say many new senses of pleasure, and much enlarged the sphere of our sensual enjoyment; and were they not to counteract themselves the aggregate happiness of society would keep pace with our improvement. Since their reign we no longer recognize the athletic hardihood of former times, when men were of "Iron Sinew," and that *creature* of whom we are so tender now, who has become so vulnerable and liable to danger, that we dare not let the "breezes of Heaven visit her chamber, or blow upon the delicate texture of her body," or move but by our care, pursued the furious beast with her bow through the craggy, thorny wood; and fearlessly reposed after her toil in the shady groves of Arcadia, O Times gone by! O Classic Recollections! free from satiety, you overwhelm me with pleasing emotions.*

* Our Theory of the Typhus Fever may be objected, since, the doctrines of Perfection are not fully settled. For authority we could refer to Dr Hamilton on Pulsative, who taught the Practice—we have explained the "Modus Operandi." In our Philosophical Disquisitions, our pages being few, without going round the Capes and Promontories of the *Mental Chart*, which is the custom of Philosophers we have at once advanced boldly up to Nature, and solicited a glimpse of her.

October 22, 1819.

END.